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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,263	11/07/2001	Michael McNeil	3123-387	2506
32093	7590	03/23/2004	EXAMINER	
HANSRA PATENT SERVICES 4525 GLEN MEADOWS PLACE BELLINGHAM, WA 98226			WONG, KIN C	
			ART UNIT	PAPER NUMBER
			2651	8

DATE MAILED: 03/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/008,263

Examiner

K. Wong

Applicant(s)

MCNEIL ET AL

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37,39-43 and 45-47 is/are rejected.
- 7) ☒ Claim(s) 38 and 44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims (1-12, 32-37 and 39-43) are rejected under 35 U.S.C. 102(e) as being anticipated by Wakefield (6178054).

Regarding claim 32: Wakefield discloses a hard disk drive (as depicted in figure 1 in Wakefield) including:

a housing (or chassis - element 101 in figure 1), including a baseplate (element 102 in figure 1);

at least one disk (element 106 in figure 1) mounted on a hub and rotated relative to the baseplate, the disk comprising a plurality of tracks for storing data;

an actuator (element 114 in figure 1) assembly mounted on a shaft (element 112 in figure 1) and rotated relative to the baseplate, the actuator assembly comprising an actuator arm (element 116 in figure 1) having a distal end (element 118 in figure 1);

a transducer (element 120 in figure 1) positioned at the distal end of the actuator arm and moveable relative to the surface of the disk; and

a write fault gate (see col. 6, line 42 to col. 7, line 10 of Wakefield which in line with the instant specification on page 3, line 2 to page 4, line 3) that varies across the surface of the at least one disk.

Regarding claim 33: Wakefield teaches that wherein the write fault gate decreases from the outer diameter (OD) of the disk to the inner diameter (ID) of the disk, allowing the data tracks to be positioned closer together nearer the ID of the disk, increasing the data density of the disk (in col. 9, lines 31-49 of Wakefield).

Regarding claim 34: Wakefield teaches that wherein an[d] independent write fault gate is individually assigned to each of a plurality of the tracks (in col. 7, lines 27-34 of Wakefield).

Regarding claim 35: Wakefield teaches that wherein each track on the disk surface is associated with an independent write fault gate (in col. 7, lines 27-34 of Wakefield).

Regarding claim 36: the limitations of wherein the write fault gate decrease is associated with the decrease in a position error signal (PES) from the outer diameter (OD) of the disk to the inner diameter (ID) of the disk are considering disclosed by Wakefield because in col. 7, line 35 to col. 8, line 51 of Wakefield where Wakefield describes the error rate for the head position on the track center of the tracks.

Regarding claim 37: the limitations of wherein the position error signal (PES) is a sigma distribution taken as a root mean square of a measured repeatable run out

Art Unit: 2651

(RRO) signal and a measured non-repeatable run out (NRRO) signal are considered satisfied because Wakefield describes the similar statistical or sigma distribution of the error rate which normally including the RRO and NRRO in col. 10, line 56 to col. 11, line 9.

Regarding claims 39-43: claims (39-43) have limitations similar to those treated in the above rejection(s), and are met by the reference as discussed above. Claim 39 however also recites the following limitations of offset of the ideal track sharp or track center that which are described in col. 3, lines 14-35 of Wakefield.

Regarding claims 1-12: method claims (1-12) are drawn to the method of using the corresponding apparatus claimed in claims 32-37. Therefore method claims (1-12) correspond to apparatus claims (32-37) and are rejected for the same reasons of anticipation as used above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims (13, 18, 23 and 28) are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakefield (6178054) in view of Moon et al (4783705).

Regarding claim 28: Wakefield discloses the disk drive system with write fault (write safe/unsafe) gate threshold as discussed in above rejections. Wakefield failed to mention the write fault threshold with servo-writing or servo-writer. Moon et al is relied upon for the teachings of servo-writing write fault threshold or write unsafe threshold (status) in col. 12, lines 1-4 and col. 23, line 54 to col. 26, line 26 of Moon et al.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Wakefield write fault threshold with the servo writing as taught by Moon et al. the rationale is as follows: one of ordinary skill in the art would have been motivated to provide an improved servo writing technique for writing the servo burst with the data transducer of disk file as suggested in col. 3, lines 48-52 of Moon et al.

Regarding claims 13, 18 and 23: method claims (13, 18 and 23) are drawn to the method of using the corresponding apparatus claimed in claim 28. Therefore method claims (13, 18 and 23) correspond to apparatus claim 28 and are rejected for the same reasons of obviousness as used above.

Claims (14-17, 19-22, 24-27, 29-31 and 45-47) rejected under 35 U.S.C. 103(a) as being unpatentable over Wakefield (6178054) and Moon et al (4783705) as applied to claim 28 above, and further in view of Ehrlich et al (6519107).

Regarding claim 29: the reason for Wakefield and Moon et al is state in above rejection. However, the combination of Wakefield and Moon et al fails to mention the position error signal (PES) for repeatable run out (RRO) and non-repeatable run out

(NRRO) in servo-writing. Ehrlich et al is relied upon for the teaching of the PES for RRO and NRRO in servo-writing in col. 16, line 49 to col. 17, line 58 of Ehrlich et al.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the servo-writing of the Wakefield and Moon et al to include the PES for detecting RRO and NRRO during the servo-writing as taught by Ehrlich et al. the rationale is as follows: one of ordinary skill would have been motivated to provide an improvement for producing the servo bursts without the unwanted pattern artifacts as such as RRO and NRRO as suggested in col. 5, lines 29-33 of Ehrlich et al.

Regarding claim 30: Wakefield teaches that the means for decreasing the PES across a stroke of a transducer moving from an outer diameter of the toward an inner diameter of the disk (in col. 9, lines 31-49 of Wakefield).

Regarding claim 31: Wakefield teaches that the means for varying each the derived write fault gate in relation to a transducer stroke moving between an outer diameter of the disk and an inner diameter of disk (in col. 6, line 42 to col. 7, line 10 of Wakefield which in line with the instant specification on page 3, line 2 to page 4, line 3).

Regarding claims 14-17: method claims (14-17) are drawn to the method of using the corresponding apparatus claimed in claims 29-31. Therefore method claims (14-17) correspond to apparatus claims (29-31) and are rejected for the same reasons of obviousness as used above.

Regarding claims 19-22: method claims (19-22) are drawn to the method of using the corresponding apparatus claimed in claims (29-31). Therefore method claims (19-

22) correspond to apparatus claims (29-31) and are rejected for the same reasons of obviousness as used above.

Regarding claims 24-27: method claims (24-27) are drawn to the method of using the corresponding apparatus claimed in claims (29-31). Therefore method claims (24-27) correspond to apparatus claims (29-31) and are rejected for the same reasons of obviousness as used above.

Regarding claims 45-47: method claims (45-47) are drawn to the method of using the corresponding apparatus claimed in claims (28-31). Therefore method claims (45-47) correspond to apparatus claims (28-31) and are rejected for the same reasons of obviousness as used above.

Allowable Subject Matter

Claims (38 and 44) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

regarding claims 38 and 44: the prior of record neither discloses nor suggests that the PES (root mean square) is equal to the square root of RRO square plus NRRO square.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kim et al (6275346) and Abdelnour (6421197) are cited for write

Art Unit: 2651

fault threshold. Lamberts et al (6421198) and Ho (6618219) are cited for RRO and NRRO during servo-writing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Wong whose telephone number is (703) 305-7772.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Hudspeth can be reached on (703) 308-4825. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for all communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

N.kw

17 Mar 04


DAVID HUDSPETH
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